Applications of a Decision Support System to Medical Staff Evaluations

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Background. The literature on the mechanics and delineation of medical staff privileges is almost wholly addressed from a legal or regulatory perspective [1]; with only scarce quantitative descriptions of actual applications and related methods[2] and even rarer descriptions of related, however tangential, medical informatics based applications[3]. With the growing use of claims and and related data by oversight agencies to investigate physician performance and allied evaluations[4], the approach presented here outlines how an existing DSS and its applications to medical staff reappointment can readily occur.

System. Holy Cross Health System Corporation patient data files {either interfaced or calculated} contain 6 years of historical multi-hospital detail charge data, including service item master charges/costs drillable to the day of stay. These files are supported on an IBM ES/9000 mainframe with dual 2003-125 processors and a RAID-5 disk array using the VSE/ESA operating system. This is connected to multiple IBM RS/6000 UNIX/AIX processors for connectivity and preprocessing of user requests. User access is via IBM 3270-type terminal emulation using TCP/IP protocols linked via a WAN. Standard interfaces using embedded SQL are supported along with a myriad of parameterized query systems installed on the feeder. The ad hoc tool used for this particular application is SPSS v6.1.

Results. Significant differences {$p<.000$} are indicated on several severity adjusted indicators of physician performance comparisons regardless of whether the evaluations are made across, between or within a sub-specialty. These differences address baseline and ongoing length of stay, mortality, charge and cost variations. Similarily, resource consumption profiles mapping the specific practice pattern use of pharmacy, laboratory, supplies, radiology and therapy are readily constructed in reference to the variant findings. "Best practice patterns" can also be constructed using these within hospital variations , external system benchmarks or even information obtained from commercial vendors. "Report cards" can be illustrated to evidence changes in patterns. Minor profiles detailing the level of resource consumption for medication, dressings & trays, X-rays, perfusion scans, CT scans, EKG and CBC, et al are also created which also exhibit practice variations. All of the above outputs have been readily incorporated into case management screens, triggers and flags; which are designed for everyday use in the hospital. Finally, the amalgamation of the profiles and patterns are used as another quantatitive measure of reappointment.

Conclusions. DSS is a powerful tool which can augment the time consuming and expensive medical chart pulls. It can readily create quantatitive baselines to measure physician performance and improvement as well as be designed to present empirical indices of medical staff evaluations, which often exceed accreditory requirements.

References

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